

WIND BLOWN SEDIMENTS IN THE QUATERNARY RECORD edited by E. Derbyshire, Quaternary Proceedings No. 4 (Quaternary Research Association), John Wiley & Sons, Chichester, 1995. No. of pages: viii + 96. Price £25.00 (pb). ISBN 4-471-95860-3.

The existence and potential palaeoenvironmental importance of the substantial accumulations of loess in Asia have long been recognized, and the majority of papers in this volume present the results of systematic evaluations of these deposits using a range of analytical techniques. The global paucity of long, more or less continuous terrestrial sediment sequences, covering all or part of the Quaternary, highlights the importance of this loess record. Reading the record in terms of palaeoclimate remains difficult, given the incompleteness of sections, the superimposition of palaeosols, and the effects of erosion and slope instability.

The search for appropriate climate proxy data has focused in recent years on increasingly sophisticated measures of magnetic susceptibility, as exemplified by the paper by Chen *et al.* on the separation of primary and secondary magnetic carriers. Derbyshire *et al.* discuss the problems involved in using the Chinese loess/palaeosol record as a proxy or proxies of aspects of Quaternary climate. Establishing causal links remains a problem, particularly when detailed chronological information is lacking, but the explicit use of the astronomically tuned SPECMAP $\delta^{18}\text{O}$ record to tune in turn the magnetic susceptibility record has enabled Shackleton *et al.* to estimate the sedimentation rates at key loess sections in Tadjikistan (Karamaidan) and China (Xifeng II). These data are then compared to the $\delta^{18}\text{O}$ record and, given that the time series are orbitally tuned, it is hardly surprising that the eccentricity and obliquity periods are present in the data or that the coherence between the spectra is particularly strong. The paper by Bronger *et al.* also focuses on the Tadjikistan loess sequence, and like Shackleton *et al.*,

these authors include the Karamaidan sequence (here spelt Karamaydan) in addition to the Chashmanigar section. On the basis of their examination of the loess pedocomplex sequences, Bronger *et al.* claim that the Chashmanigar section gives even more palaeoclimatic information for the period of the Matuyama Chron than the loess profiles in China, and the deep sea cores analysed so far. Readers need only consult the paper by Catt to be disabused of any notion that the interpretation of soil and palaeosol horizons is a simple matter.

Fundamental concerns such as the source of the mineral grains in the Chinese loess and the depositional fabrics are addressed in a pair of papers by Clarke. The rare earth elements are used to fingerprint dust deposits in Tibet and on the Western Chinese Loess Plateau, and the results are used to suggest that Tibetan silt is a significant component of the loess at Lanzhou. Anisotropy in the magnetic susceptibility is used to establish the sediment fabrics in a range of silt deposits across the Tibetan front. This fabric analysis enables air fall deposits to be distinguished clearly from reworked ones.

The paper by Tsatkin *et al.* on the weathering and pedogenesis of wind-blown sands and silts in the Mount Carmel caves, Israel, sits rather uneasily in the context of the other papers and the title of the volume misrepresents the contents. The articles are almost exclusively concerned with loess, and with the latter part of the Quaternary record. Given the publication of other papers from the same Royal Holloway meeting in *Quaternary Science Reviews*, it would have been useful if the Quaternary Proceedings had included a list of the papers to appear in the companion volume.

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